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McGREGOR, et al

Serial No: 08/749,721

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For: **MOBILE PHONE WITH INTERNAL ACCOUNTING**

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Assistant Commissioner for Patents
Washington, D.C. 20231

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Carrie L. St.

INFORMATION DISCLOSURE STATEMENT

The subject application is a divisional application of Application No. 381,704 filed January 30, 1995, now U.S. Patent No. 5,577,100 which is the subject of a patent infringement action in the Northern District of California, Case No. C 98-0002 CW ENE, entitled, Telemac Cellular Corp. v. Topp Telecom, Inc.

A review of the '100 patent has raised issues concerning the prior art considered in related and referenced applications to the '100 patent. The comprehensive listing here presented includes a consolidation of the references cited in the subject '100 patent and the related and referenced applications and patents to the subject patent. Additionally, new items of prior art considered in the referenced action or brought to applicants' attention subsequent to filing, are also included.

McGregor et al, Patent No. 5,325,418, issued 28 June 1994, and incorporated by reference in the '100 patent discloses a cellular telephone accounting system particularly adapted for rental of cellular phone units, with a central processing unit, cellular telephone units and an interlink receiver. The telephone unit is equipped with an internal clock and calendar circuit, and memory to record call data including time, date and call numbers, for reporting to the central processing unit through the interlink receiver. The central processing unit has a tracking and accounting program to track where the phones make calls and calculate charges for calls including local, roaming, long distance, and international calls together with other charges and surcharges for preparing a rental bill.

McGregor et al, Patent No. 5,625,669, issued 29 April 1997 is a continuation-in-part application of the McGregor et al application that issued as Patent No. 5,325,418, and expands the technology of the rental system to a centralized billing system with tracking and call charges processed in a central information processor preferably accessed from any terminal networked to the central processor. The mobile telephones in the system are hand-held units with a transceiver and an internal microprocessor, memory and time clock, the transceiver including a receiver for receiving area identification codes and storing the codes with call timing data for transfer to the central information processor for tracking the phone units and determining roaming charges and other call charges for centralized billing.

Gabriel et al, Patent No. 3,459,882, issued 5 August 1969, discloses a battery powered pay-for viewing device and describes an early pre-paid use system.

Bass et al, Patent No. 3,531,586, issued 29 September 1970, discloses a broadcast system for transmitting debit signals for use in pay programming, such as pay television.

Albertini et al, Patent No. 3,725,947, issued 3 April, 1973, discloses an automatic timekeeping and accounting unit and includes a keyboard for data entry and a printer for statements and reports. In one embodiment telephone usage is recorded for appropriate client billing using identity codes.

Atalla et al, Patent No. 3,938,091, issued 10 February 1976, discloses a password system suitable for use in making a credit card telephone call where a secret password is entered into the device which generates a code word and the code word and password are input to a verification machine for authenticating a match before proceeding.

Mondardini, Patent No. 4,518,824, issued 21 May 1985, discloses a calling card system in which a personal phone number and a dialing code are used to effect debiting charges. The patent describes the basic calling card system used in Europe.

Coombes, Patent No. 4,635,285, issued 6 January 1987, describes a two-way radio communication system of the simplex or half-duplex type having a communication link to a duplex telephone system wherein the simplex mobile radio is provided with priority to talk on demand. The communication protocols provide priority to the remote station over the land station for improved communication.

Kamil, Patent No. 4,706,275, issued 10 November 1987, discloses a prepayment method for a telephone system in which the user can use any telephone for completing telephone calls and the call costs are debited from the prepaid account. In essence, the user's special calling code operates similar to a system in which calls are charges to one's "home" telephone number.

D'Avello et al, Patent No. 4,831,647, issued 16 May 1989 discloses a system for authenticating credit card information for a car phone system by passing transmitted credit card data to the service provider which is relayed to a registration computer for the credit check.

D'Avello et al., Patent No. 4,860,341, issued 22 August 1989, is a related patent to D'Avello et al Patent No. 4,831,647.

Freedman, Patent No. 4,839,829, issued 13 June 1989, describes a system for automated control of printing from a remote

location wherein the remote central processing unit communicates with multiple terminals from a remote site through a modem. The remote terminals are connected to a printer and the printer is operated under remote control through the modem lines by the central processing unit.

Bean et al, Patent No. 4,916,621, issued 10 April 1990, discloses a portable microprocessor-based data collection unit adapted for traffic detectors from which it can be disconnected without loss of data. The device includes a microprocessor, real-time clock and data storage all interconnected in one circuit.

Bishop et al, Patent No. 4,951,308, issued 21 August 1990, describes a mobile cellular telephone system adapted to the rental market wherein phone usage is calculated by estimated duration of the calls as related to the discharge of the battery unit for the cellular telephone. The reference describes the use of a vending machine in which a phone can be obtained by a customer through use of the customer's credit card.

Parker, Patent No. 4,958,368, issued 18 September 1990, discloses a customer activation system that allows remote activation by an agent through communication with a regional process via a data entry device. The system establishes a customer file. The customer activation system automatically enters the customer information, accomplishes the customer credit checking,

assigns the telephone number with switch insertion and activation of the new number and billing activation for the new customer.

Bishop et al, Patent No. 4,965,821, issued 23 October 1990, discloses a system for automating the checkout of an automobile equipped with a cellular phone at a rental agency. The mobile cellular phone in the automobile is associated with a card reader of a credit card type that initiates a communication between the cellular phone and a custom administration computer for collecting the various data for the checkout procedure. Utilizing the data from the card and that input by the customer, a printed contract is provided for signature and verification of the customer's drivers license.

Krolopp et al, Patent No. 5,020,091, issued 28 May 1991, discloses a radiotelephone with multiple telephone numbers for use in different systems areas. A received SID is compared with the stored SIDs, and if a match is found the new number is used. If no match the phone is a roaming unit and enters an idle state only receiving incoming calls.

Szczutkowski et al, 5,023,936, issued 11 June 1991, discloses a digital radio transceiver in the form of a programmable phone unit that includes security arrangements that enable and disable certain features after manufacture or at the time of purchase. In this manner a multiple feature unit can be tailored

to different configurations from basic to added channels, DTMF capability, etc.

Molnar, Patent No. 5,046,188, issued 3 September 1991, describes a communication system in which a plurality of local subscriber ports communicate with a central controller which receives digital commands and information from terminals at the subscriber ports. The central controller processes the commands and responds by initiating execution of certain predetermined features in the central controller, the effect being executed at the remote terminals.

Hattori et al, Patent No. 5,109,401, issued 28 April 1992, discloses a mobile phone unit with a user controlled account reference for appraising the user of call charges made. A communication session is established with the carrier, but for transmitting a call rate to the phone unit, not for programming or activating the phone.

O'Sullivan, Patent No. 5,127,041, issued 30 June 1992, describes a system for interfacing computers to a generic-type modem that enables cable connection to cellular transceiver units of diverse manufacture. The generic modem solves the problem of use of a modem for normal computer connections and use of a separated modem for each different interface that may be desired to connect to the modem for data transfer.

Stahl et al, Patent No. 5,138,650, issued 11 August 1992, discloses a method of handling charge authorizations in a cordless phone in which the phone is credited by a value representing a purchased amount prior to usage of the phone and debited depending on the actual usage of the phone. The phone includes an internal flag that upon use of all credit will terminate the call after a warning signal. A similar objective is desired, to minimize traffic with the public telephone network. Internally, the handset has an algorithm which is programmed to subtract the appropriate charges as the call is made. The patent suggest calling into the system to request more credit upon notification that existing credit has been used. The patent also notes all credit data exchanges between base stations and handsets should be encrypted for security. It also notes that the decrementing algorithm may be integrated into the software of the handset. Notably, the handset must still receive the decrement rate from the base station in the system during the data exchange. The system also suggests use of a credit vending machine for high traffic areas.

Zicker et al, Patent No. 5,144,649, issued 1 September 1992, describes a system for operating a communication system with a plurality of cellular radio telephones having credit card readers. The reference discloses a system of communication sessions with the remoted programming host for transmitting telephone data including credit card data to the host for validation and unlocking of the phone so that a call may be placed.

The call data including number, call, time, duration, and system identification number are recorded in a call record for each call in the radio telephone unit. Accumulated data is uploaded to the credit card host processor on a daily basis during off-peak hours. A fraud threshold is provided, which when exceeded disconnects the phone.

Haralambopoulos et al, Patent No. 5,148,474, issued 15 September 1992, discloses a system for accounting for value added telecommunication services such as the seven hundred or nine hundred number services.

Wagai et al, Patent No. 5,203,014, issued 13 April 1993, discloses a telecommunication device such as a pager that receives messages and service information from a base station. By appropriate multiple ID codes different alert signals can be provided to the pager user to distinguish between normal calling and service information.

Langrand et al, Patent No. 5,233,656, issued 3 August 1993, discloses a security system for transferring rental data to and from a rental telephone using key data including a public key and a private variable key allowing encoding and decoding of secret telephone rental data in a telephone network to prevent fraudulent transactions. Transfer of phone rental data from a main authorization center to auxiliary authorization centers enables authorized roaming services.

Higuchi et al, Patent No. 5,276,729, issued 4 January 1994, discloses a remotely programmable radio telephone using DTMF tones that are converted into digital signals. The reprogramming can be restricted by requiring the phone user to enter a password or security code stored in the memory of the remote programming unit. The memory also has a number of roam access bins. The system includes a host processor unit, the remote programming unit and a programmable radio telephone.

Gerszberg, Patent No. 5,297,191, issued 22 March 1994, discloses a system for downloading the assignment number and parameters into a memory circuit of a mobile phone to initiate cellular service. Since the mobile telephone initiates the dialogue with the service provider, it is apparent that the activation system is primarily used for service switches as opposed to initiating a new service. In one embodiment, a modem is used for purging the communication path between the telecommunication service center and the mobile unit. After establishing a voice communication channel, the system is switched to a data transfer via the mobile telephone modem and communication system modem for transfer of the changed parameters. Some alternative methods are discloses for adaption to another analog and digital systems. While a method of remote programming is taught, it does not appear the security issues were addressed.

Gerszberg, Patent No. 5,297,192, issued 22 March 1994, is a related patent to Gerszberg '191.

Amadon et al, Patent No. 5,301,223, issued 5 April 1994, describes a real time accounting system for a mobile telephone unit. The accounting system is particularly useful for a rental unit and is used in conjunction with the phone user's credit card number. The real time system collects call data at the service provider site and commences billing on a daily or other time basis for use by the rental agency. The system is distinguished by the feature of the calculations being performed at the telephone switching office instead of internally in the phone unit.

Kerihuel et al, Patent 5,303,285, issued 12 April 1994, discloses a call security system for a wireless telephone service to authenticate a valid user, the system using a secret key known only to the caller and a random number and generating a call signature using a predetermined algorithm. The service control points have a database with words identifying a subscriber and a subscriber key for decoding the secret data sent by the subscriber to initiate a call.

Hillis, Patent No. 5,303,297, issued 12 April 1994, discloses a dynamic billing system that adapts to the system load in real time. A user on making a call receives a rate charge and if acceptable makes the call and if not, waits to place it later when the charge rate may be less.

Koma et al, Patent No. 5,309,500, issued 3 May 1994, discloses a cellular mobile station with a time display mode as well as a telephone mode. In the time display mode the station constantly receives area identifying code and on crossing a boundary the time difference value is entered. The reference is noted as a way an electronic clock can count clock pulses from a time base and generate time of day data.

Matchett et al, Patent No. 5,335,278, issued 2 August 1994, discloses a fraud prevention system that includes a central database system for pulling data from multiple local sites. The pulled data is transmitted to each site in the system and updated periodically for enabling the local service provider to compare access codes for cellular telephone units placing a call, in particular from a site that is not the caller's main service provider. The reference teaches various methods of encrypting the data and storing ESN/MIN data including PIN data. There is no indication how the pin is obtained or the caller is interrogated.

Schilling, Patent No. 5,359,182, issued 25 October 1994, discloses a wireless telephone debit card communication system in which the credit for the user is carried on the debit card and the debit telephone number is the telephone number of the debit card, not the specific telephone being used. Credit/debit data is transmitted to the service provider at call time for adjustment of the debit card account.

Ortiz et al, Patent No. 5,361,297, issued 1 November 1994, discloses a call supervision system for detecting completion of national and international calls. Additionally disclosed, is an autonomous pay telephone arrangement including a billing system for a mobile telephone for calculating call charges for immediate payment. A CPU control board memory stores billing rates for services to be provided such as local and long distance incoming and outgoing pre-charges and the like for calculating a call charge for use of the phone.

Gulliford et al, Patent No. 5,384,776, issued 24 January 1995 discloses a digitally trunked radio frequency communications system for routing audio signals between an audio source and any of a plurality of audio destinations, the system being suited for a mobile communication network.

Cooper, Patent No. 5,386,455, issued 31 January 1995 discloses a custom method for activation of a cellular telephone using a local central processing unit that is connected via a modem to the local service carrier's authorizing computer. In the process, the cellular phone unit establishes a direct communication link through its input/output data interference terminal. The direct connection between the local central processing unit by modem with the local carrier authorization computer enables the phone unit to be programmed and assigned its identification number during the communication session.

Campana, Jr., Patent No. 5,446,759, issued 29 August 1995 discloses a wireless transmission system suitable for transmitting information streams to mobile receivers such as cellular phones, pagers and other wireless devices, the system sending two information streams that are time delayed, which streams are synchronized and combined by the receivers to eliminate errors caused intervals of signal fading to produce error free transmitted information.

Wittstein et al, Patent No. 5,631,947, issued 20 May 1997, discloses a mobile telephone device for a rental system including a telephone handset and associated computer for calculating phone usage charges consisting of call charges and rental charges and storing the charges for transfer of the phone usage data to a rental station computer terminal for preparing a bill. The telephone device also includes a use limit enforcement routine for disabling the phone after a pre-set time limit, and a charge limit routine for disabling the telephone device when total charges plus a minimum charge are greater than the charge limit.

Fougnies et al, Patent No. 5,722,067, issued 24 February 1998, discloses a security method for authorizing wireless telephone calls of pre-paid subscribers with cellular phones preprogrammed with a pre-selected number and an automated number identification code which on calls, first directs the call through to a host computer that accesses a subscriber account data base

with an account balance that is decremented during the authorized call.

Megatrend, WO 92/16078, published 17 September 1992, is a PCT publication of the specification of the Wittstein et al Patent No. 5,631,947 above.

Anritsu, K.K., Japan App. No. 3-45031, Pub. 26 February 1991. The reference discloses a portable telephone handset having information storage means for storing call charge units, the value of which corresponds to the amount of payment made for purchase or rental of the phone. The units are reduced each time a billing signal is received from a base station during a call. The billing signal is received per a timing interval corresponding to a line distance based on an area identification. The handset is deactivated when the units are depleted. The reference mentions that a billing rate table in which rates are based on regions and a clock can be prepared in a portable handset and that the handset can perform the same billing registration and calculation processes as when billing signals were received from a base station. No implementation of this alternative is described. The reference does not discuss features such as roaming, international calls or other factors considered in the complex billing algorithm of applicant. It is mentioned that the handset can be taken to a "designated agency" for updating the call charge unit information and recharging the battery. However no interaction with a host

processor is disclosed.

Anritsu, K.K., Japan App. No. 3-80756, Pub. 5 April 1991. The reference discloses a portable telephone unit having a call charge unit storage means which stores the call charge unit value that corresponds to prepaid call charges obtained when the portable unit is connected to a public pay telephone and a card is inserted or coins deposited to refill the portable telephone handset with a desired call charge unit value. During calls, the call charge unit value is gradually reduced. No details of the manner in which the call charges are calculated are disclosed. An alternate embodiment is disclosed that allows the battery to be charged at a level equivalent to the level of call charge unit value. In both alternatives, when call charge units are used, the handset can be refilled without going to a particular agency, but to the closest public telephone. No host processor is involved in coordinating accounts.

Anrtisu, K.K., Japan App. No. 3-60229, Pub. 15 March 1991. The reference discloses a portable telephone handset that is used in a rental business and includes an internal means to detect and store call charge units used for calls, and means to display or to output the used call charge units after a rental period. The handset includes a clock circuit to provide date/time data for discounts, and a time data storage means for call duration per call charge unit for area code zones from different calling areas. An

alternate example is disclosed in which a rental fee for a certain number of call charge units can be collected in advance and a call charge unit deducted each time a call charge unit signal is generated. Details relating to the manner of implementing the system are not provided.

NTT, K.K. Japan App. No. 3-280652, Pub. 29 March 1990. The reference discloses a mobile rental terminal where the user pays call charges in advance and when accumulated call charges exceed the amount prepaid by the user, the communication terminal is disabled. The reference discloses certain procedures for entry of a monetary amount that includes the use of passwords and indicates the calls are billed based on a charge index and call duration. Although an external computer is mentioned for entry of a monetary amount (Eng. Trans. p.4, l.6), the use of a host processor for controlling the phone accounts is not disclosed.

Lee, William, Mobile Cellular Telecommunications Systems, pp. 68-70 (1989) describes general terminology used for mobile communications systems including the various acronyms.

Sim's Communications Inc., Instafone (1993) is a flier showing a kiosk and describing a procedure for renting a phone and receiving a detailed bill of calls when the phone is returned.

Nokia Service Manual 101/1000, Nokia Mobile Phones, Inc.

copyright 1991 and 1992. The relevance section of the Nokia Manual describes the programming of a mobile phone unit using a conventional personal computer and a software program. The reference describes programming of a phone from a single manufacturer using a single phone terminal or boot into which the mobile phone unit is installed. The mobile phone unit is programmed with the NAM parameters and activated via the software program installed in the computer. The program is for one phone of a single manufacturer and only one phone is programmed at a time. The reference is relevant to show programming of a mobile unit in a single port terminal boot via a software program in a computer.

The representative OMEX COMMUNICATIONS references, including a 1993 hand dated advertisement and 1993 and 1994 pricing list and dealer documentation describe a hand-held cellular debit phone where a customer pays in advance for airtime in blocks of minutes. In each cellular phone there are two debit timer modules, one for calls in the home service area and the other for roaming. Only limited types of calls can be made using the blocks of pre-paid roaming airtime. The two timers allow the dealer to pre-program the cellular phone with blocks of pre-paid air time. Time period blocks are punched into the phone through the keypad. The phone ceases to operate when the pre-allotted units of time are consumed by the user. Long distance calls must be paid for using a credit card, debit calling card, etc. or other third party billing system.

Machado, L., "Making Cellular Renting Your Business," All in Communications, pp. 24-27, 30, dated October 1993 is an article that describes a prepaid cellular system called "SMART TRACKER." The system is described as including cellular telephones with an internal microcircuit that is programmed using a specific code assigned to each circuit for the amount of airtime for which the subscriber chooses to pay. Airtime is stated to be programmed in 60 second increments from one minute to 256 hours with a flashing warning light that signals when the phone is down to 30 minutes. When the subscriber runs out of airtime, the system locks the cellular phone and prevents incoming and outgoing calls. The subscriber must then return to the dealer for reactivation and prepay for additional airtime.

Of the references cited, the following references are considered particularly pertinent to the pending claims.

McGregor et al, Pat. No. 5,325,418

D'Avello et al, Pat. No. 4,860,341

Hattori et al, Pat. No. 5,109,401

Stahl et al, Pat. No. 5,138,650

Gerszberg, Pat. No. 5,297,191

Hillis, Pat. No. 5,303,297

Ortiz, Pat. No. 5,361,297

Wittstein et al, Pat. No. 5,631,947

Megatrend, WO 92/16078

Anritsu, K.K. Japan 3-45031

Anritsu, K.K. Japan 3-80756

Anritsu, K.K. Japan 3-60229

NTT, K.K. Japan 3-280652

OMEX COMMUNICATIONS advertisement (1993), Pricing List (1993 and 1994).

Machado, L., ALL IN COMMUNICATIONS, October 1993, pp.24-27. "Making Cellular Renting Your Business"

In a motion for partial summary judgement, the defendant in the above referenced action contends that Wittstein, Pat. No. 5,631,947 anticipates the majority of claims in the '100 Patent and that the four Japanese disclosures show that the claimed invention is the '100 Patent is old.

Respectfully submitted,

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REP:cls

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